

Applicants: BERNARD JOHN COOPER, KEVIN MICHAEL COOPER, BRENDAN GERARD COOPER, AND JOHN JOSEPH COOPER

For: TREATMENT OF SMELTING BY-PRODUCTS
Page 3 of 5

AMENDMENTS TO THE CLAIMS

(Original) 1. A method of treating a spent potliner after use in an aluminium smelting process, the method comprising crushing and classifying the spent potliner, placing the classified and crushed spent potliner in a furnace at a temperature greater than 450°C, heating the spent potliner to a temperature greater than 450°C, mixing the heated spent potliner with water to produce reaction gases and residue, burning the reaction gases, mixing the residue with water in a well ventilated area for a period of weeks to cure the residue.

(Original) 2. The method according to claim 1 comprising blending the cured residue with other chemicals and minerals to provide mineral products.

(Currently Amended) 3. The method according to either claim 1 ~~or claim 2~~ wherein the classified and crushed spent potliner is positioned in a rotary kiln into which air is introduced to ensure an oxygen enriched environment.

(Original) 4. The method according to claim 3 comprising using thermocouples to control the temperature of the kiln.

(Original) 5. The method according to claim 4 comprising directing jets of air into the kiln to prevent agglomeration.

(Original) 6. The method according to any one of the preceding claims comprising exposing the wet mixture in a pile to ambient conditions between 5 and 20°C in a well ventilated location.

(Original) 7. The method according to claim 6 comprising mixing the pile on a

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Page 4 of 5

daily basis with total exposure being up to four weeks.

(Currently Amended) 8. A plant for processing spend potliners according to the
method of any one of claims ~~1 to 7~~.

(Currently Amended) 9. Mineral products comprising chemicals and minerals
blended with residue treated by the method in accordance with any one of claims ~~1 to 7~~.

(Original) 10. A mineral product according to claim 9 wherein the treated residue
is blended with refractory brick waste, crushed anode carbon, dross powder and
supplemented with black and/or brown coal and sand in proportion varying in accordance
with the end use of the mineral product.